

EAST – WEST MOBILITY STUDY

WORKING PAPER # 1 – DRAFT

ASSESSMENT OF TITLE VI AND ENVIRONMENTAL JUSTICE

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I. EXECUTIVE SUMMARY

The East-West Mobility Study (Study) is one element of the Maricopa Association of Government's (MAG) Regional Transportation Planning Process. The Study area is bounded by Thunderbird / Waddell Road on the north to Northern Avenue on the south; and Loop 303 on the west to SR 51 on the east. The Study will assess options for east-west traffic flow improvements within the project area.

To be consistent with the requirements of Title VI and the Executive Order for Environmental Justice, the demographic characteristics of the study area population were examined to determine whether various specified populations might be disproportionately adversely affected by or discriminated against by the implementation of any East-West Mobility Strategy Package. This analysis indicated that some tracts within the study area have high percentages of the populations protected under Title VI.

As alternatives are developed and evaluated during the Study, impacts to these populations will be evaluated. The evaluation will help ensure that these populations are not disproportionately adversely affected by the recommended East-West Mobility Strategy Package. In addition, the East-West Mobility Study is intended to improve mobility; therefore, the study recommendations will serve to benefit all the residents of the study area regardless of their census population classification.

II. INTRODUCTION

Title VI of the Civil Rights Act of 1964 and related statutes set forth that individuals are not excluded from participating in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal funding on the basis of Race, Color, National Origin, Age, Sex, or Disability. Executive Order 12898 on Environmental Justice further directs that federal programs, policies, and activities not have a disproportionately high and adverse human health and environmental effect on minority and low-income populations.

This working paper is intended to address Title VI and Environmental Justice issues and to provide relevant demographic information. This paper has also been prepared to inform the affected public and transportation decision makers about the federal guidance available to address Title VI and Environmental Justice through the transportation planning process.

This paper provides summaries of the demographic data that are necessary to understand how all study area populations might be affected by the transportation alternatives developed for the Study. The socioeconomic and environmental factors that may affect transportation-related improvements at specific locations, and will be addressed in this paper, include the following.

Title VI and Environmental Justice population characteristics:

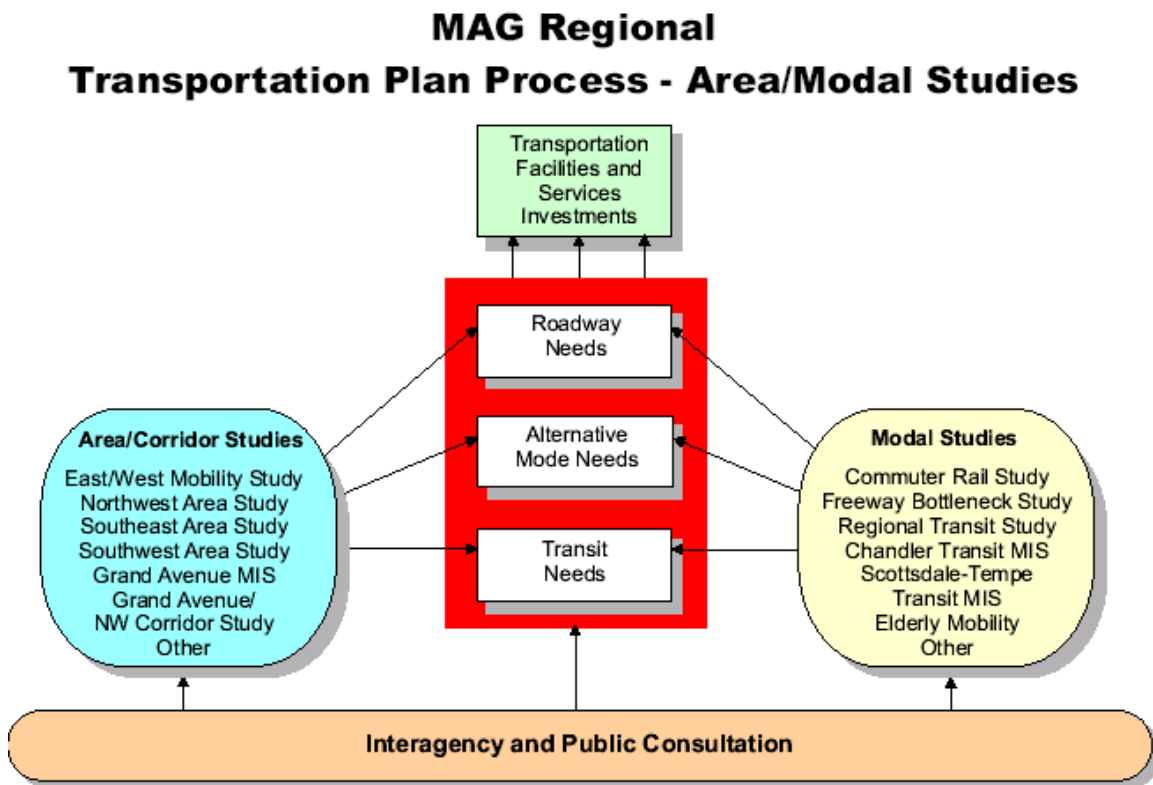
- ◆ Race (percent minority)
- ◆ Age (percent age 60 and older)
- ◆ Mobility disability (prevalence of persons with mobility or self-care limitations)

- ◆ Low income (as defined by federal poverty guidelines)
- ◆ Female head of households (percent single female parent), and
- Air quality
- Noise

III. STUDY BACKGROUND

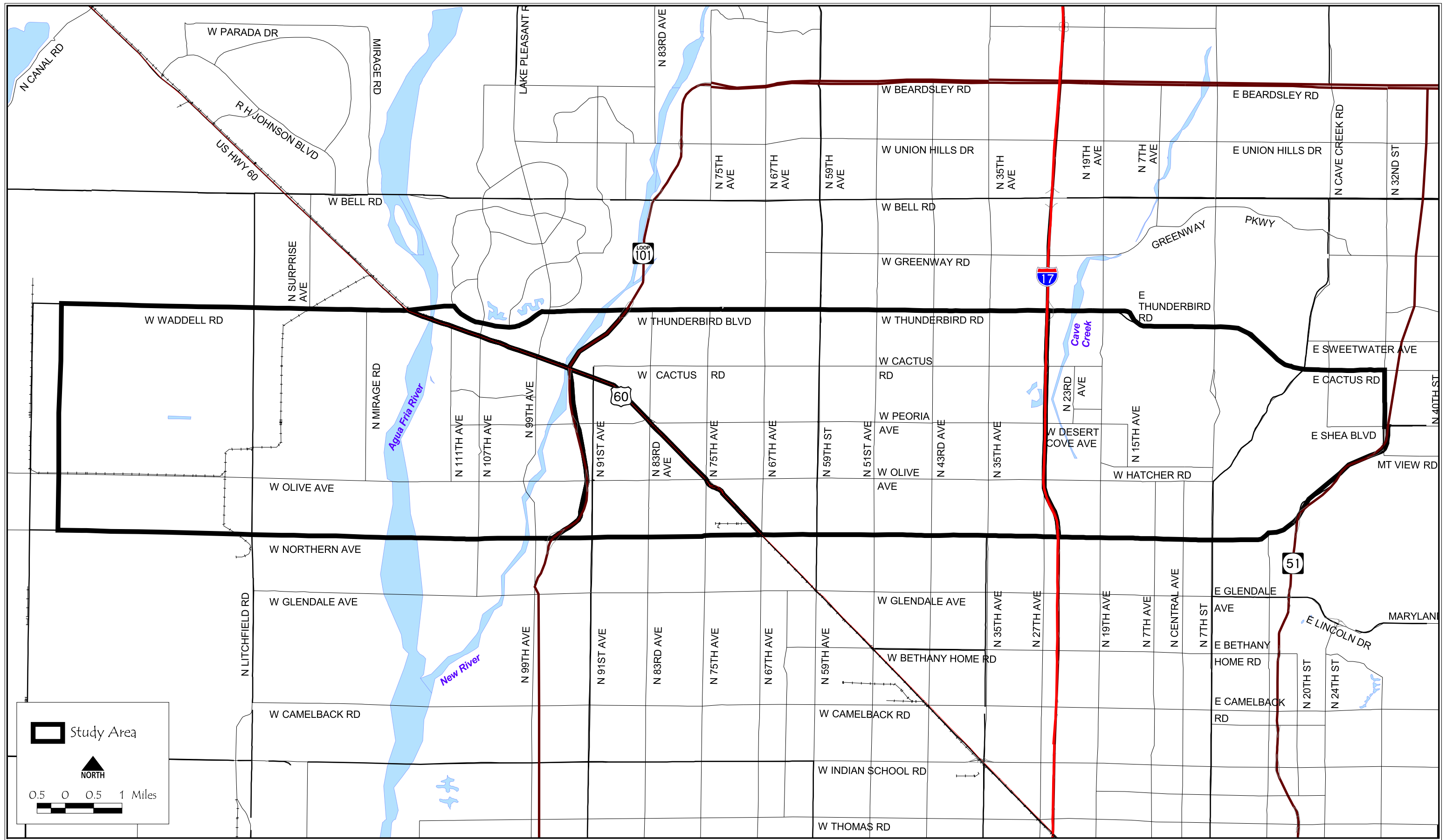
Maricopa County is expected to continue to experience major population increases and is forecast to grow from approximately 3.1 million in 2000 to 6.3 million in 2040, driven by migration from other states and immigration from Latin America. The Regional Transportation Planning Process is intended to address the increased demands associated with these population increases. The East-West Mobility Study is one part of the overall MAG Regional Transportation Planning Process (see Figure 1).

Figure 1 – Regional Transportation Plan Process



IV. STUDY AREA

The study area is bounded by Thunderbird / Waddell Road on the north to Northern Avenue on the south; and Loop 303 on the west to SR 51 on the east. Figure 2 shows a map of the study area.



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FIGURE 2:
Map of Study Area
East-West Mobility Study

V. OVERVIEW OF THE EAST-WEST MOBILITY STUDY PROCESS

The study will assess options for east-west traffic flow improvements within the project area. The study area will be divided into four segments to reflect different patterns of existing residential and commercial development that potentially would be impacted by facility improvements. These segments from west to east will be:

1. Loop 303 to Loop 101
2. Loop 101 to Grand Avenue
3. Grand Avenue to I-17, and
4. I-17 to SR 51.

The Study will include an assessment of current traffic demands and facility characteristics, estimates of future traffic demands, development of alternative East-West Mobility Strategy Packages, and a screening process that leads to a Preferred East-West Mobility Strategy Package. The screening process will include an evaluation of Title VI and Environmental Justice considerations. The evaluation criteria will be developed as the study process progresses, with this working paper serving as the background for their development.

The Study will separate potential strategies into a hierarchical order that considers first those actions that address the fundamental transportation and land use relationships that cause vehicle trips. If the reason for the trip can be eliminated, so can the trip and its contribution to congestion. In successive rounds of analysis, the residual trips not mitigated by previous levels of actions are successively dealt with using techniques aimed at the next higher level of concern. The successive levels are described below.

- Level One: Actions that decrease the need for trip making (i.e. land use patterns, activity centers, congestion pricing, and some transportation demand management measures).
- Level Two: Actions that put as many trips as possible into high occupancy vehicles (HOV).
- Level Three: Actions that optimize the highway system's operation for single occupancy vehicle (SOV) trips using highway facilities/modes (traffic signalization modification, intelligent transportation systems, etc.).

VI. METHODOLOGY AND ASSUMPTIONS

All efforts will be made to ensure that current information is used during the study process, including plans and policies developed by the local and regional jurisdictions.

Year 1990 Census, 1995 Special Census (where available), and Year 2000 Census (where available) information was collected and summarized. Available demographic information based on Census tracts was analyzed. Additional elements of the 2000 Census will become available for use as this study proceeds.

VII. PUBLIC INVOLVEMENT / COORDINATION

Public involvement opportunities will be provided throughout the decision-making process. The study also includes comprehensive agency and public involvement components to ensure active community and governmental agency involvement throughout the study process.

Public meetings are tentatively scheduled for January 16, February 21, and March 27, 2002. These three meetings will be used, respectively, to present study findings and to solicit public input on project issues, development of alternatives, and evaluation of alternatives / recommendations.

VIII. TITLE VI AND ENVIRONMENTAL JUSTICE POPULATIONS

Title VI of the 1964 Civil Rights Act, Section 601, states:

"No person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

Title VI of the Civil Rights Act of 1964 and related statutes assure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, religion, age, gender or disability. Executive Order 12898 on Environmental Justice directs that programs, policies and activities not have a disproportionately large and adverse human health and environmental effect on minority and low-income populations. In recent years there has been increased attention and focus on ensuring equity, environmental justice and Title VI compliance in the delivery of government programs. Recipients of federal assistance for transportation-related projects are now required to assure compliance with all civil rights standards applicable to the specified transportation-related projects, as they relate to Title VI of the Civil Rights Act of 1964, as amended.

To be consistent with the requirements of Title VI and the Executive Order for Environmental Justice, the demographic characteristics of the study area population were examined to determine whether various specified populations might be disproportionately adversely affected by or discriminated against by the implementation of any East-West Mobility Strategy Package. Projects developed for the Study could be funded from federal sources. Therefore, these recommended projects would be developed and presented in a manner to assure that they are compliant with Title VI and Environmental Justice requirements. Specific alternative East-West Mobility Strategy Packages will be analyzed for potential Title VI impacts as part of the alternatives analysis phase of the Study. The following demographic variables will be considered:

- ◆ Race (percent minority)
- ◆ Age (percent age 60 and older)
- ◆ Mobility disability (prevalence of persons with mobility or self-care limitations)
- ◆ Low income (as defined by federal poverty guidelines)
- ◆ Female head of households (percent single female parent)

Figures 3 through 7 display the proportion of the population belonging to each of these groups by Census tract. The maps are based on Year 2000 Census data collected for Maricopa County, except for population with a mobility disability (Figure 5), which is based on the 1990 Census, and low-income households, which is based on the 1995 Special Census for Maricopa County.

The minority population describes the ethnic background for each person within the population and includes individuals whom are African American, Hispanic, Asian / Pacific Islander, Native American, or Alaskan Native. Figure 3 shows the percent of minority residents by Census tract. The percentage ranges from less than 7% in some tracts, to the range of 30-60% in a few Census tracts near El Mirage / Youngtown and just east of 19th Avenue. According to the 1995 Special Census 28% of the total population in Maricopa County was classified as minority.

Elderly refers to individuals 60 years of age and older. Figure 4 illustrates that most Census tracts within the study area have populations that are in the range of less than 7% to about 30% elderly. A grouping of tracts to the south of Sun City has elderly populations of between 30% to more than 60%. A total of 12.6% of Maricopa County individuals are elderly.

Mobility Disability has been defined as the populations of persons, 16 years of age and older, who have been identified as having a mobility or self-care limitation due to a health condition. These health conditions are further defined as having lasted six or more months and have made it difficult to travel outside the home unassisted. Mobility Disability data were obtained from the 1990 Census database. Figure 5 shows, by Census tract, the proportion of residents in the corridor with a disability. Most Census tracts within the study area have populations with a mobility disability of less than 5%. Several Census tracts in the northwest corner of the study area as well as just to the east of I-17 have mobility disability populations of 5% to 10%. The highest percentages of persons with a mobility disability are Census tracts with 10% to 15% and are found in the vicinity of Youngtown / US 60. A total of 6% of Maricopa County individuals have a mobility disability.

Low-income populations are defined as households that fall below the federal poverty guidelines. To correspond to 1995 Census data, 1995 federal poverty guidelines were used to determine low-income populations. Poverty status in 1995 was defined as a household earning an annual income that is equal to or less than the following:

- ◆ One-person household earning \$7,500 or less
- ◆ Two-person household earning \$10,000 or less
- ◆ Three-person household earning \$12,500 or less
- ◆ Four or more person household earning \$15,000 or less

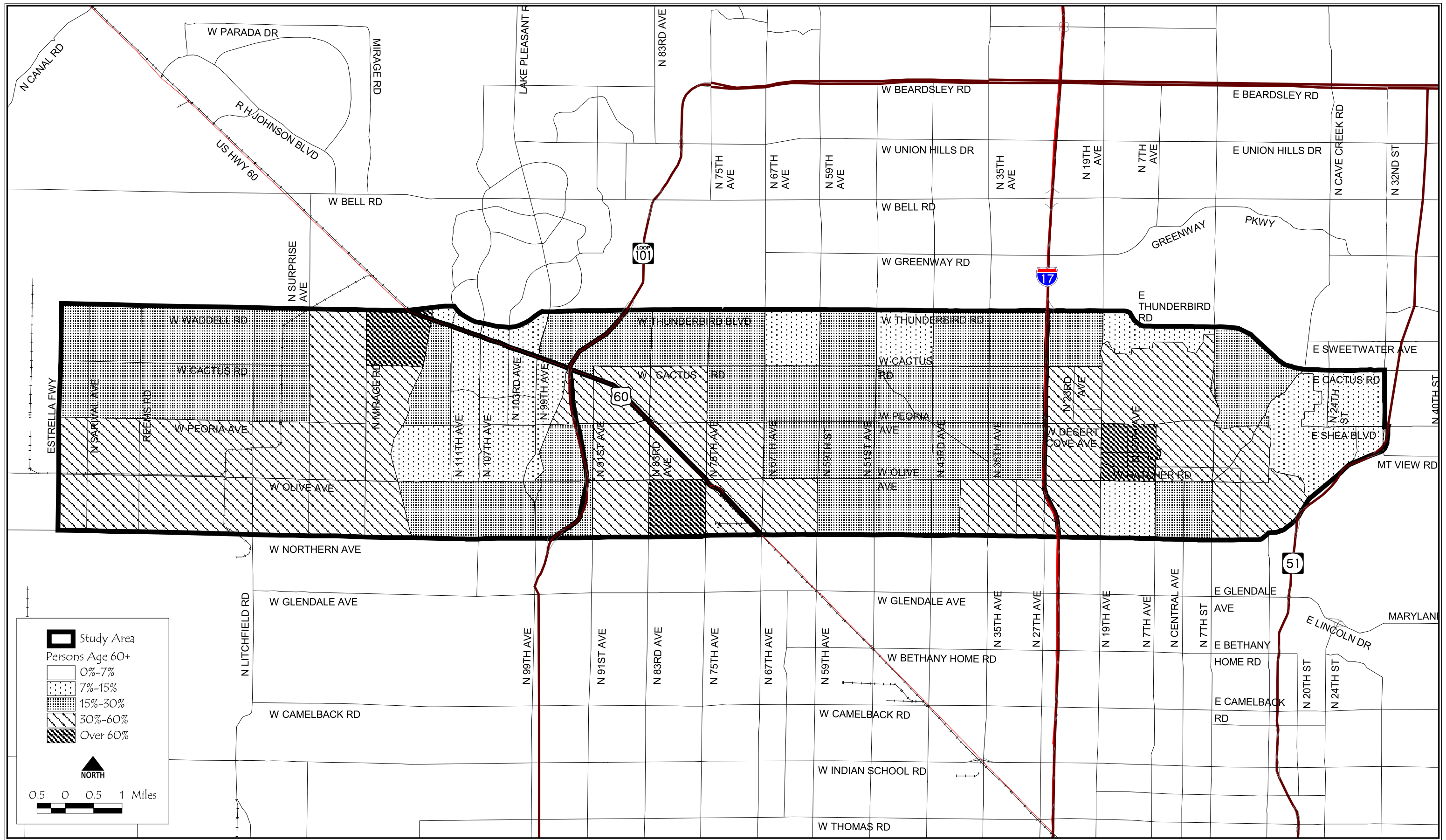
The percentage of households identified as low income is shown in Figure 6 and ranges from fewer than 7% in many Census tracts to the range of 30% to 60% in a two Census tracts, one near El Mirage and one just southeast of Peoria Avenue at 19th Avenue. Several other Census tracts show low-income households in the range of 15% to 30%. A total of 10% of the households in Maricopa County are considered to be low-income households. It is important to note that a large percentage of households did not report

household income. The percentage of households reporting income within each Census tract is shown in black text and in some tracts is just over 50%.

A female head of household is defined as a household that is maintained by a single female parent. Figure 7 shows the percentage of female heads of household for the study area. Most Census tracts have from less than 7% to about 30% female heads of household, while the female head of household populations are between 30% and 60% in about seven Census tracts dispersed within the study area. A total of 11.6% of the households in Maricopa County are maintained by a single female parent.

Figures 3 through 7 demonstrate that some tracts within the study area have high percentages of the populations protected under Title VI. As alternatives are developed and evaluated during the Study, impacts to these populations will be evaluated. The evaluation will help ensure that these populations are not disproportionately adversely affected by the recommended East-West Mobility Strategy Package. This is, after all, a study intended to improve mobility; therefore it is more likely that, when implemented, the recommendations will serve to benefit all the residents of the study area regardless of their Census population classification.

Appendix A shows the full narrative for *Title VI - Nondiscrimination In Federally Assisted Programs*, as well as the Federal Highway Administration *Actions to Address Environmental Justice in Minority Populations*.

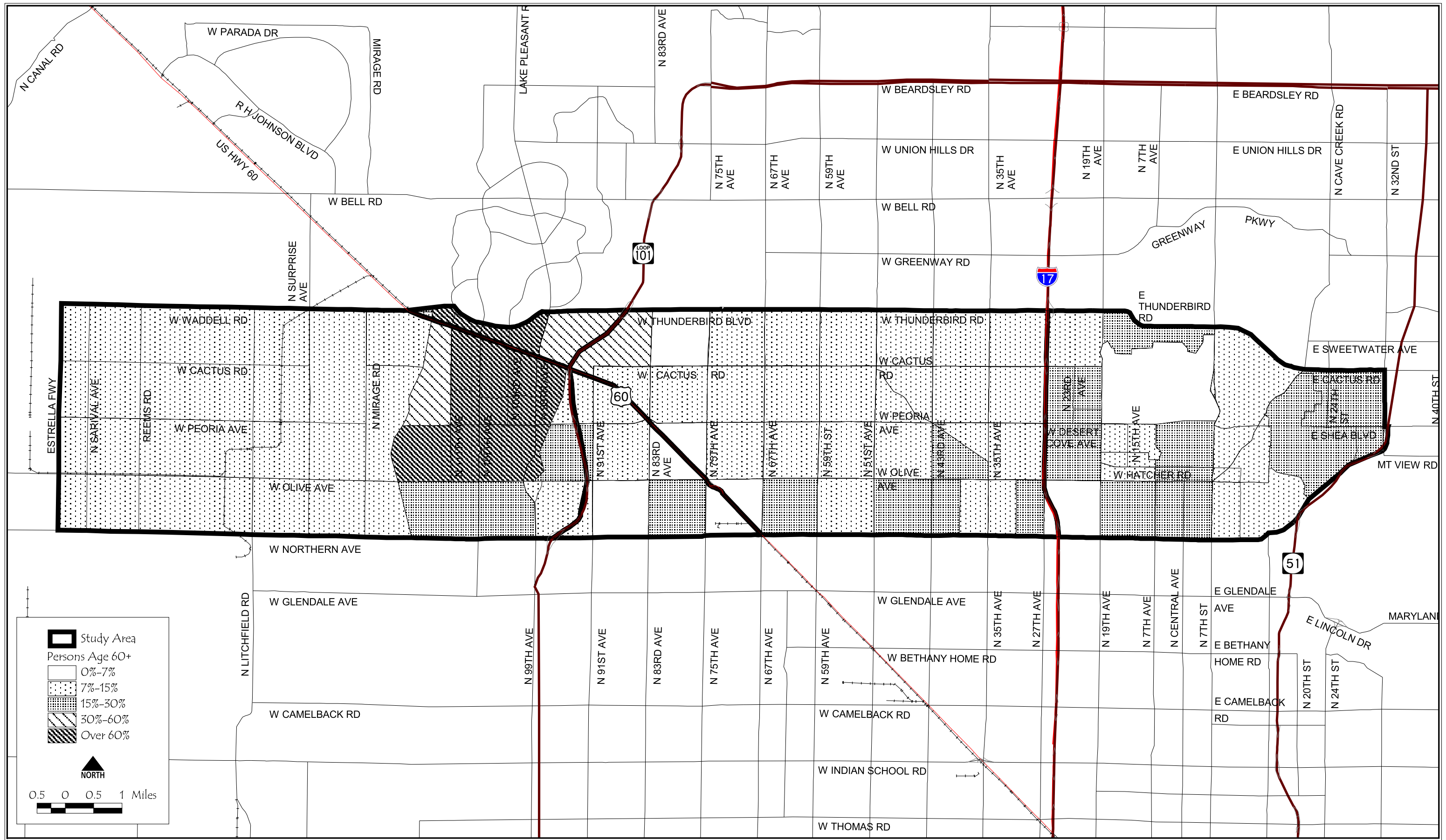


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Figure 3:
Population by Race
East-West Mobility Study

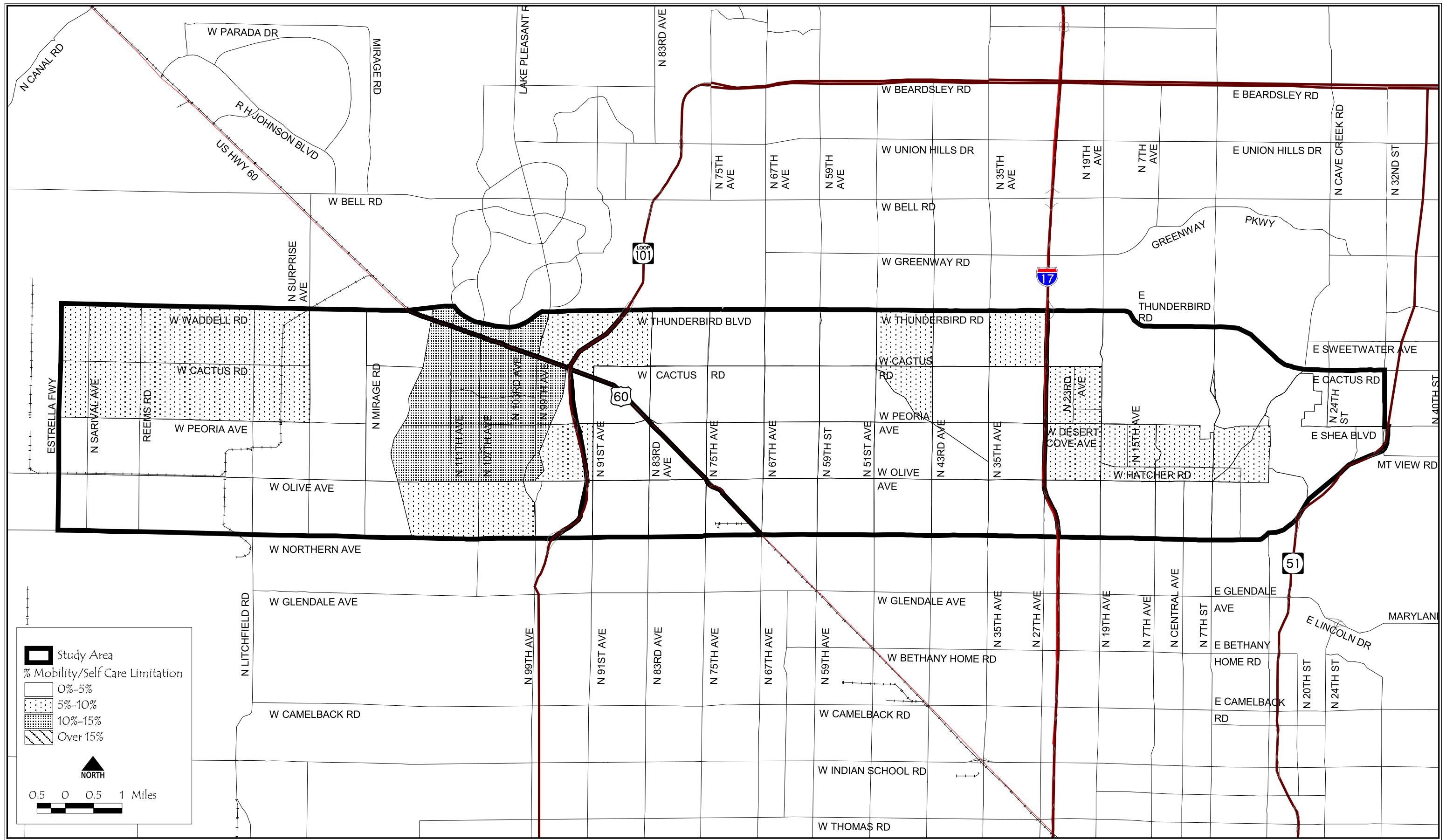


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Figure 4:
Population by Age
East-West Mobility Study

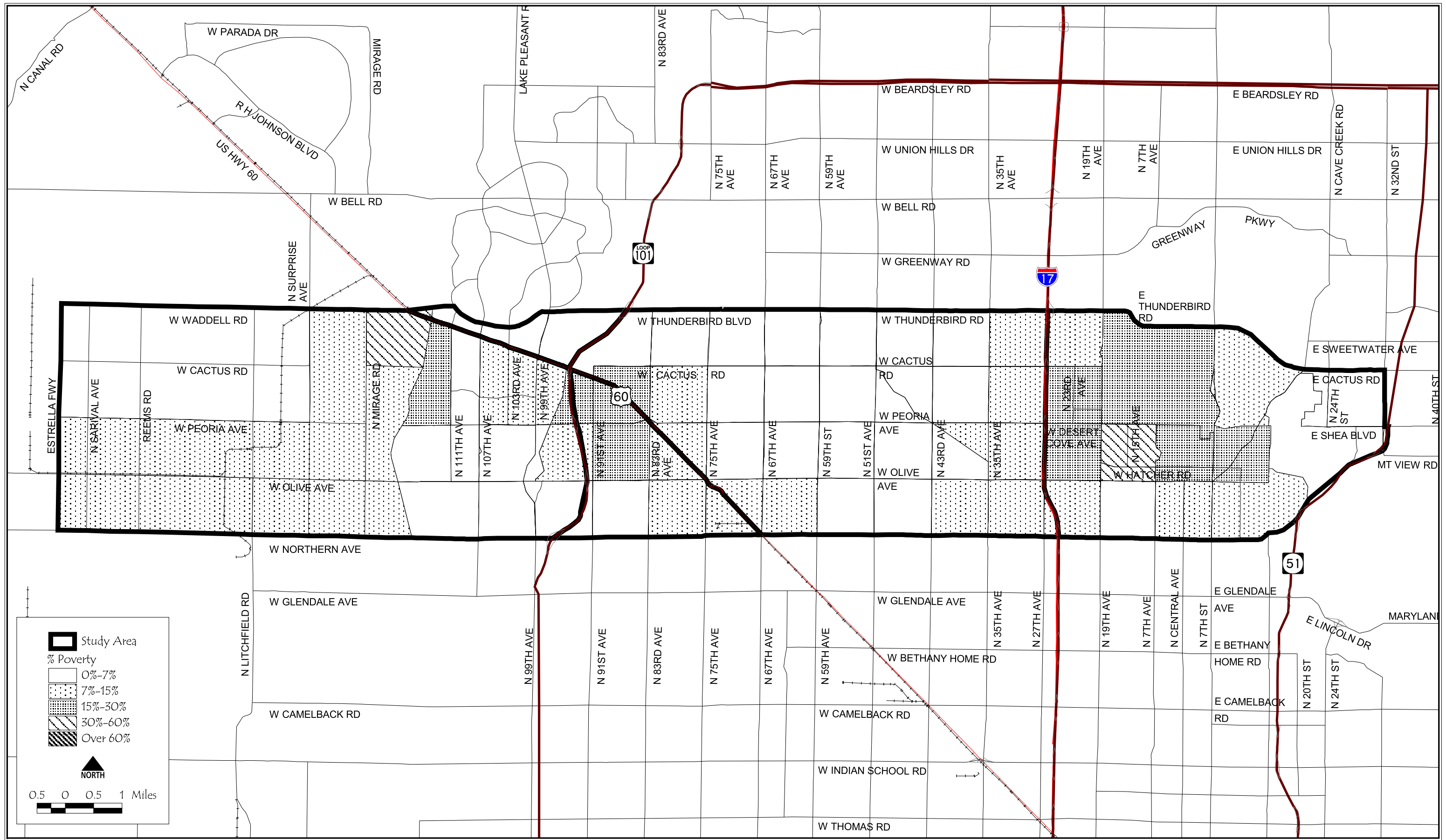


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Figure 5:
Population with Mobility Disability
East-West Mobility Study

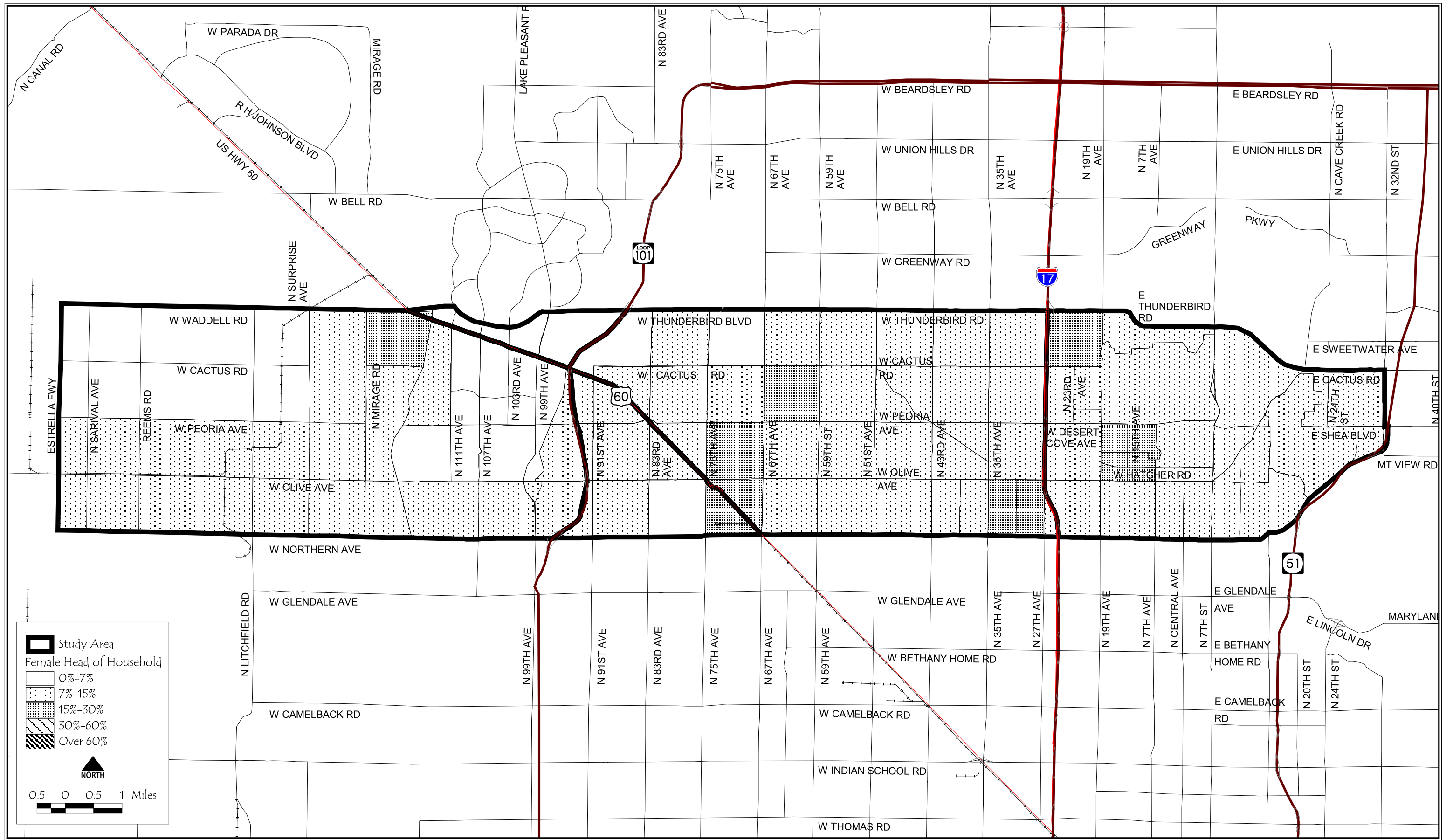


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Figure 6:
Low Income Population
East-West Mobility Study



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Figure 7:
Female Head of Household
East-West Mobility Study

IX. NOISE AND AIR QUALITY CONSIDERATIONS

While the Study will be directed first and foremost at trip reduction strategies (see Section IV. Overview of East/West Mobility Study Process), there may be alternatives that result in an increase in vehicle trips on one or more arterials. Any noise and air quality impacts that may be associated with projected increases in traffic will be considered with respect to all affected populations.

Appendix B includes a detailed discussion on noise analysis and abatement procedures as outlined by the Federal Highway Administration, the Arizona Department of Transportation and the U.S. Department of Housing and Urban Development. A discussion of the U.S. Environmental Protection Agency principal air pollutants is also presented.

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- 1990 Census Data
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- Noise Abatement Policy for Federal Aid Projects, 2000

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- Long Range Transportation Plan, 1994 Update
- Maricopa Association of Governments Regional Transportation Plan Update Demographics and Social Change Issue Paper, June 2001
- Grand Avenue Northwest Study, Working Paper No. 4, Environmental Issues and Title VI / Environmental Justice, April 12, 2001
- 1995 Special Census

U.S. Bureau of the Census

- 1990 Census Data
- 2000 Census Data

U.S. Department of Transportation (USDOT), Federal Highway Administration

- 1997 Final DOT Order on Environmental Justice
- FHWA's Procedures for the Abatement of Highway Traffic and Construction Noise (23 CFR 772).

U.S. Government

- Executive Order No. 12898 Federal Actions to Address Environmental Justice

APPENDIX A

**Title VI - Nondiscrimination in Federally Assisted Programs,
Civil Rights Act of 1964**

FHWA Actions to Address Environmental Justice (abridged)

Title VI - Nondiscrimination in Federally Assisted Programs
Civil Rights Act of 1964
42 USC 2000(d)-2000(d)(1)

General

This title declares it to be the policy of the United States that discrimination on the ground of race, color, or national origin shall not occur in connection with programs and activities receiving Federal financial assistance and authorizes and directs the appropriate Federal departments and agencies to take action to carry out this policy. This title is not intended to apply to foreign assistance programs.

Section 601 states the general principle that no person in the United States shall be excluded from participation in or otherwise discriminated against on the ground of race, color, or national origin under any program or activity receiving Federal financial assistance.

Section 602 directs each Federal agency administering a program of Federal financial assistance by way of grant, contract, or loan to take action pursuant to rule, regulation, or order of general applicability to effectuate the principle of section 601 in a manner consistent with the achievement of the objectives of the statute authorizing the assistance. In seeking the effect compliance with its requirements imposed under this section, an agency is authorized to terminate or to refuse to grant or to continue assistance under a program to any recipient as to whom there has been an express finding pursuant to a hearing of a failure to comply with the requirements under that program, and it may also employ any other means authorized by law. However, each agency is directed first to seek compliance with its requirements by voluntary means.

Section 603 provides that any agency action taken pursuant to section 602 shall be subject to such judicial review as would be available for similar actions by that agency on other grounds. Where the agency action consists of terminating or refusing to grant or to continue financial assistance because of a finding of a failure of the recipient to comply with the agency's requirements imposed under section 602, and the agency action would not otherwise be subject to judicial review under existing law, judicial review shall nevertheless be available to any person aggrieved as provided in section 10 of the Administrative Procedure Act (5 USC 1009). The section also states explicitly that in the latter situation such agency action shall not be deemed committed to unreviewable agency discretion within the meaning of section 10. The purpose of this provision is to obviate the possible argument that although section 603 provides for review in accordance with section 10, section 10 itself has an exception for action "committed to agency discretion," which might otherwise be carried over into section 603. It is not the purpose of this provision of section 603, however, otherwise to alter the scope of judicial review as presently provided in section 10(e) of the Administrative Procedure Act.

**Federal Highway Administration
FHWA ACTIONS TO ADDRESS ENVIRONMENTAL JUSTICE
IN MINORITY POPULATIONS AND LOW-INCOME POPULATIONS, 6640.23
December 2, 1998**

PURPOSE AND AUTHORITY

This Order establishes policies and procedures for the Federal Highway Administration (FHWA) to use in complying with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898), dated February 11, 1994. EO 12898 requires Federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health and environmental effects, including the interrelated social and economic effects of their programs, policies, and activities on minority populations and low-income populations in the United States. These requirements are to be carried out to the greatest extent practicable, consistent with applicable statutes and the National Performance Review. Compliance with this FHWA Order is a key element in the environmental justice strategy adopted by FHWA to implement EO 12898, and can be achieved within the framework of existing laws, regulations, and guidance. Consistent with paragraph 6-609 of Executive Order 12898 and the Department of Transportation Order on Environmental Justice (DOT Order 5610.2) dated April 15, 1997, this Order is limited to improving the internal management of the Agency and is not intended to, nor does it, create any rights, benefits, or trust responsibility, substantive or procedural, enforceable at law or equity, by a party against the Agency, its officers, or any person. Nor should this Order be construed to create any right to judicial review involving the compliance or noncompliance with this Order by the Agency, its operating administrations, its officers, or any other person.

DEFINITIONS

The following terms, where used in this Order, shall have the following meanings:

FHWA means the Federal Highway Administration as a whole and one or more of its individual components;

Low-Income means a household income at or below the Department of Health and Human Services poverty guidelines;

Minority means a person who is:

- (1) Black (having origins in any of the black racial groups of Africa);
- (2) Hispanic (of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
- (3) Asian American (having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or
- (4) American Indian and Alaskan Native (having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).

Low-Income Population means any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed FHWA program, policy, or activity.

Minority Population means any readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed FHWA program, policy, or activity.

Adverse Effects means the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to: bodily impairment, infirmity, illness or death; air, noise, and water pollution and soil contamination; destruction or disruption of man-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community's economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms, or nonprofit organizations; increased traffic congestion, isolation, exclusion or separation of minority or low-income individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of, benefits of FHWA programs, policies, or activities.

Disproportionately High and Adverse Effect on Minority and Low-Income Populations means an adverse effect that: (1) is predominately borne by a minority population and/or a low-income population; or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non minority population and/or non low-income population.

Programs, Policies, and/or Activities means all projects, programs, policies, and activities that affect human health or the environment, and that are undertaken, funded, or approved by FHWA. These include, but are not limited to, permits, licenses, and financial assistance provided by FHWA. Interrelated projects within a system may be considered to be a single project, program, policy, or activity for purposes of this Order.

Regulations and Guidance means regulations, programs, policies, guidance, and procedures promulgated, issued, or approved by FHWA.

POLICY

It is FHWA's longstanding policy to actively ensure nondiscrimination in federally funded activities. Furthermore, it is FHWA's continuing policy to identify and prevent discriminatory effects by actively administering its programs, policies, and activities to ensure that social impacts to communities and people are recognized early and continually throughout the transportation decision making process--from early planning through implementation.

Should the potential for discrimination be discovered, action to eliminate the potential shall be taken. EO 12898, DOT Order 5610.2, and this Order are primarily a reaffirmation of the principles of Title VI of the Civil Rights Act of 1964 (Title VI) and related statutes, the National Environmental Policy Act (NEPA), 23 U.S.C. 109(h) and other Federal environmental laws, emphasizing the incorporation of those provisions with the environmental and transportation decision making processes.

APPENDIX B
NOISE ANALYSIS AND ABATEMENT PROCEDURES
AIR QUALITY ANALYSIS

Traffic Noise

Sound is created when an object vibrates and radiates part of its energy as acoustic pressure or waves through a medium, such as air, water, or a solid object. Sound levels are expressed in units called decibels (dB). Since the human ear does not respond equally to all frequencies (or pitches), measured sound levels (in dB at standard frequency bands) are often adjusted or weighted to correspond to the frequency response of human hearing and the human perception of loudness. The weighted sound level is designated as the A-weighted sound level in decibels, or (dBA), and is measured with a calibrated sound level meter. Typical sound levels experienced by people range from about 40 dBA, the daytime level in a typical quiet living room, to 85 dBA, the approximate level produced by a food blender at 3 feet.

Noise is defined as unwanted sound. The ability of an average individual to perceive changes in noise levels is well documented. Generally, changes in noise levels less than 3 dBA will be barely perceived by most listeners, whereas a 10-dBA change normally is perceived as a doubling of noise levels. The general principle on which most noise acceptability criteria are based is that a perceptible change in noise is likely to cause annoyance wherever it intrudes upon the existing noise from all other sources (i.e., annoyance depends upon the noise that exists before the introduction of a new sound).

Measurement of Noise (L_{eq} and L_{dn})

Several descriptors are used to express noise levels, which correlate with human perception. The Federal Highway Administration (FHWA) uses the energy equivalent level (L_{eq}) noise exposure descriptor for assessing the impacts of roadway projects. L_{eq} is calculated by averaging the dBA noise levels measured over a specified period of time. The FHWA assesses roadway noise levels in terms of a one-hour L_{eq} , which is the average of instantaneous dBA sound levels measured over a period of one hour. Use of L_{eq} is appropriate for traffic noise analysis because these levels are sensitive to both the frequency of occurrence and duration of transportation noise events.

The Department of Housing and Urban Development (HUD) assesses roadway noise levels in terms of a day-night average sound level (L_{dn}). It is generally agreed that community perception of nighttime noise levels is higher than during the daytime. This is because nighttime ambient environmental noise levels in most areas are approximately 10 dBA lower than daytime noise levels. The L_{dn} descriptor applies a 10-dBA “penalty” to noise levels occurring between 10:00 p.m. and 7:00 a.m. to account for increased community sensitivity to nighttime noise levels.

FHWA and ADOT Impact Criteria

Noise-sensitive land uses and activities in the vicinity of roadway construction projects must be first identified and analyzed. FHWA and the Arizona Department of Transportation (ADOT) require that anticipated changes in noise levels for these sensitive areas be identified during design hour conditions when the noise levels are expected to be the highest. Table B-1 displays the FHWA noise abatement criteria (NAC) for varying land activity categories as presented in *FHWA’s Procedures for the Abatement of Highway Traffic and Construction Noise* (23 CFR 772). These criteria

specify noise levels considered to be the upper levels of acceptability for outdoor and certain indoor activities.

Table B-1

Activity Category	L_{aeq1h} ¹ (dBA)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands.
E	52 (Interior) ²	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.
<p>1. L_{aeq1h} is the one-hour a-weighted energy equivalent sound level.</p> <p>2. The interior sound levels (activity) apply to: (1) indoor activities for those parcels where no exterior noise-sensitive land use or activity is identified, and (2) those situations where the exterior activities are either remote from the highway or shielded in some manner so that the exterior activities will not be affected by the noise, but the interior activities will be affected.</p> <p>Source: 23 CFR 772.</p>		

ADOT also adopted a *Noise Abatement Policy for Federal Aid Projects* (ADOT, 2000c), which indicates that a traffic noise impact occurs under either of the following conditions:

- When the predicted level approaches or exceeds the FHWA's NAC. "Approaches" is defined as within 3 dBA of the NAC, or 64 dBA L_{aeq1h} or greater, for residential areas, schools, and parks; or
- When the predicted level substantially exceeds the existing noise level. "Substantial" is defined as 15 dBA or greater.

If an impact (exceedance of NAC) is predicted, then FHWA's procedures and ADOT Policy indicate that mitigation should be considered. However, the abatement measures must be both reasonable and feasible. According to ADOT's policy, "Feasibility deals primarily with engineering considerations (e.g., can a barrier be built given the topography of the location; can a substantial noise reduction be achieved given certain access, drainage, snow, safety, or maintenance requirements; are other noise sources present in the areas, etc.)". Reasonableness is a more subjective criterion, which includes, but is not limited to, the following factors: amount of noise reduction provided; cost of abatement; views from affected residents; the future noise levels; timing and consideration of development along the highway; and location of isolated receptors.

HUD Impact Criteria

It is HUD's general policy to provide minimum national standards under their programs to protect citizens against excessive noise in their communities and places of residence. Programs affected by these standards include planning assistance, new home construction, and existing homes. Standards are based on 24-hour noise measurements and the evaluation of day-night noise levels.

The degree of acceptability of the noise environment at a site is determined by the sound levels external to buildings or other facilities containing noise sensitive uses. The standards usually apply at a location 2 meters (6.5 feet) from the building housing noise sensitive activities in the direction of the predominant noise source. Where the building location is undetermined, the standards apply 2 meters (6.5 feet) from the building setback line nearest to the predominant noise source. The standards also apply at other locations where it is determined that quiet outdoor space is required in an area ancillary to the principal use on the site. Site acceptability standards are catalogued in Table B-2.

Table B-2: HUD Site Acceptability Standards		
	<i>Day-night average sound level</i>	<i>Special approvals and requirements</i>
Acceptable	Not exceeding 65 dBA (1)	None
Normally Unacceptable	Above 65 dBA but not exceeding 75 dBA	Special approvals, environmental review, noise attenuation (2)
Unacceptable	Above 75 dBA	Special approvals, environmental review, noise attenuation (3)
Notes:		
(1) Acceptable threshold may be shifted to 70 dBA in special circumstances pursuant to 24 CFR 51, Section 51.105 (a)		
(2) 5 dBA additional attenuation required for sites above 65 dBA but not exceeding 70 dBA and 10 dBA additional attenuation required for sites above 70 dBA but not exceeding 75 dBA,		
(3) Attenuation measures to be submitted to the Assistant Secretary for Community Planning and Development for approval on a case-by-case basis.		

The noise environment inside a building is considered acceptable if: (1) The noise environment external to the building complies with these standards, and (2) the building is constructed in a manner common to the area or, if of uncommon construction, has at least the equivalent noise attenuation characteristics.

Given the current level of residential development and anticipated residential component in the proposed corridor, any major roadway improvements that may become a part of the study recommendations will need to be evaluated for noise impacts at the preliminary design and environmental assessment phases to determine if noise mitigation measures are needed. Also, any section 4(f) properties may be considered noise sensitive land uses requiring impact evaluation.

Air Quality

The U.S. Environmental Protection Agency (EPA) maintains a national air quality monitoring network to assess the presence of principal air pollutants affecting the ambient (general) air quality in major metropolitan areas throughout the nation. Pollutants considered to have a potentially significant effect on human health include the following:

- Carbon monoxide (CO) - an invisible, odorless gas generated when motor fuel is not burned completely. Sufficiently high concentrations cause unconsciousness and death. CO tends to build up and persist in “hot spots” when high emissions levels occur in a localized area.
- Ozone - is a secondary pollutant created by a chemical reaction between oxides of nitrogen (NO_x) and volatile organic compounds (VOCs) in the presence of heat and light. The burning of fossil fuels such as gasoline, diesel fuel and wood are major sources of NO_x and VOCs. Ozone is created when sunlight and heat react with nitrous oxides and chemicals called volatile organic compounds.
- PM-10 - small particles that are less than 10 microns in diameter and that are emitted into the air from vehicles (particularly diesel trucks), combustion, construction work and other activities that raise dust. Natural forces such as dust storms can also raise ambient PM-10 levels.

The principal environmental concerns affecting transportation in the Northwest Valley are the air quality non-attainment areas for ozone, carbon monoxide and PM-10. The entire study area falls within a regional non-attainment area for ozone, carbon monoxide and PM-10. Projects increasing roadway capacity and recommended in the East-West Mobility Study will have to be evaluated to determine if they conform to local air quality improvement plans.